

Applicant(s):MAGNUS BJORNSSON AND GILAD SADE  
Serial No.: 10/795,851  
Filed: March 8, 2004

In the Specification

Please replace the paragraph from the amendment dated January 5, 2007 beginning at page 9, line 12 with the following:

In accordance with this invention, a data processing system includes a host device with at least two applications for processing data. One of the [application ]applications processes data in source device storage locations and enables the copying of that data to predetermined destination device storage locations concurrently with the operation of at least one application in response to commands identifying the predetermined storage locations. A response to a first command establishes a first operating environment including first and second lists of the predetermined source device storage locations and a third list of the predetermined destination device storage locations. Copying occurs in an ordered manner. For each predetermined storage location, the process includes copying the data from one predetermined source device location to a corresponding destination device storage location, updating each of the lists to indicate that the data has been transferred, and responding to a change to a source device storage location for which a copy has been made by updating each of the lists to denote that another transfer needs to occur. A second command establishes a second environment in

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which the destination device storage locations are available for use by another host application.

Please replace the paragraph beginning at page 17, line 7 with the following:

As will be described later, the ACTIVE COPY command terminates any ongoing operations in response to the PRECOPY command and immediately makes the destination device available to another application program. During this interval a background copy operation transfers any data from the source device to the destination device not previously transferred [[by ]]in response to the PRECOPY command. A foreground operation associated with the source device assures handling of write operations to the source device. Another foreground operation at the destination device assures handling of both read and write operations.

Please replace the paragraph beginning at page 18, line 4 with the following:

When the data storage facility 24 in FIG. 1 receives a CREATE CLONE command in step 100 of FIG. 3, step 101 verifies the command, as by testing syntax other characteristics. Step 102 transfers control to step 103 to an establish operating

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environment when all the tests are met. Step 103, for example, generates the data structure for the open system as shown in FIG. 2B. Step 103 also could clear the ACTIVE flag 78 in FIG. 2A. Normally clearing the ACTIVE flag [[79 ]]78 would be redundant, however. Step 103 could also provide session information to the SESSION IDS block 76 in FIG. 2A.

Please replace the paragraph from the amendment dated January 5, 2007 beginning at page 26, line 13 with the following:

If the precopy PB bit is set, step 152 causes the process to revert to a sequence as shown in step 156 to test the CLONE PB bit of the source device to which the data has been copied. If the data has already been copied during the precopy process, step 157 transfers control to step 154 to determine whether more tracks exist. If the track has not been copied, the CLONE PB bit is set. Step 158 copies the track and step 160 clears the IND bit. Step 161 clears the CLONE PB bit and control transfers to step 154. When all the tracks have been copied, step 154 terminates the procedure.

Please replace the paragraph beginning at page 28, line 5 with the following:

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As will now be appreciated, this invention enhances the data processing operations from several perspectives. Assume it is desired to back up 100 devices at a given time during the evening. In accordance with the prior art, 100 copy commands would be given simultaneously to the 100 devices. This would initiate 100 instances of the copy programs. The resulting initial load could significantly slow responses to write requests directed to the source device and read and write requests directed to the destination device. In addition, there could be a significant interval during which the data on the destination device would not constitute a complete copy of the data as it existed at the time the copy program was initiated.

Please replace the paragraph beginning at page 29, line 8 with the following:

The foregoing description relates to the operation of these commands in connection with an open system environment in which an entire logical device can be transferred. This invention is also applicable to devices operating in a mainframe environment. For a mainframe system, U. S. Patent No. 6,363,385 discloses a procedure by which sets of selected contiguous tracks or "extents" can be identified for transfer. FIG. 9A depicts the cache organization and is the same as shown in FIG. 2A except for the use of an extents track pointer 70A in lieu of the data structure of FIG. 2B. Further, the extents

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track pointer 70A that points to a data structure as shown in FIG. 9B. This data structure has the same configuration as shown in FIG. 3 of U.S. Patent No. 6,363,385 with one addition. Specifically, the extents buffer contains two session IDs, namely a [[snap ]]precopy session ID 167 and a [precopy ]clone session ID 168.

Please replace the paragraphs beginning at page 31, line 1 through page 32, line 2 with the following:

The specific description of this invention has been in terms of a single precopy operation. It will become apparent that multiple operations can occur concurrently with a single source device provided that there are sufficient numbers of pairs of available PB columns in the source device header. This invention has also been described in terms of a particular implementation with a specific data storage facility configuration. Specific flags such as the IND flag have been defined. Specific operating sequences have been disclosed. It is understood that the definition of these flags and operating sequences may be altered and others may be eliminated depending upon the configuration and capacities of a particular data storage facility [[that ]]with the attainment of some or all of [these objections ]the objectives of this invention.